Amendments to the Drawings

The attached sheet of drawings includes changes to FIG. 1, 2 and 3. In each figure, the label "PRIOR ART" has been added. This sheet, which includes FIGS. 1, 2 and 3, replaces the original sheet including FIGS. 1-2.

Attachment: Replacement sheet.

REMARKS

Claims 1-16 are pending in the application. Reconsideration and allowance of claims 1-16 in light of the arguments herein is respectfully requested.

Allowable Subject Matter

The Examiner has indicated that claims 2-10 and 13-16 are allowable over the prior art of record. Accordingly, only claims 1, 11 and 12 remain at issue. Applicant thanks the examiner but believes that the invention according to all pending claims is distinguishable over the cited reference.

Prior Art Rejection

Claims 1, 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent number 6,507,301 ("Locher"). Reconsideration of this rejection is respectfully requested.

Locher fails to render obvious the invention of claims 1, 11 and 12

Locher actually relates to a sigma-delta modulator with an adjustable feedback factor. According to Locher, there are different possibilities for adjusting the feedback factor. One possibility is described in connection with Locher FIG. 3. The sigma-delta modulator of Locher FIG. 3 comprises a controlled current source 14. The output of the current source is connected via a switch 12 to a capacitor 11. The capacitor is connected between two output contacts of the switch 12, and these output contacts are connected to the inputs of an operational amplifier 13. The switch 12 is controlled by a digital signal present at the output of a quantizer 3. Dependent on the switching position of the switch, the current adjusted at the current source charges or discharges the capacitor. Therefore, a certain voltage is applied to the capacitor 11 dependent on the current adjusted at the current source 14. This certain voltage determines the feedback factor.

According to Locher, there are various ways to adjust the current of the current source. This is done, for example, by analog control through transistors or by the use of a digital control. One possible method is discussed in connection with FIG. 4. The current source of Locher FIG. 4 comprises a plurality of current sources which are connected together and to the switch by a plurality of further switches. The plurality of current sources generate different output currents. Dependent on the feedback factor to be adjusted, the total current output by the current sources is determined by switching together and combining a necessary number of the plurality of current sources via the further switches.

According to Locher, the current output by the current source 14 to be applied to the capacitor 11 has a certain value for reaching a specific feedback factor. Further according to Locher, the control signal or signals for adjusting the current output by the current source can have an abrupt rise and an abrupt fall like a digital signal during a clock duration. The levels of the control signal abruptly change during the course of the control signal applied to the current source.

In accordance with the present invention defined by the pending claims, the control voltage applied to the control input of the current source has within a clock duration a reproducible curve ending with a falling flank. One advantage of this solution is that the value of the current output by the current source has already reached a low value at the end of the curve of a single clock. Therefore, the jitter of the clock signal can affect the low value of the current output by the current source, only. Fluctuations of the clock duration do not significantly influence the result of the modulator. This is a feature wholly missing from the disclosure of Locher, which fails to show, describe or suggest "a voltage signal which has within a clock duration a reproducible curve ending with a falling flank" as recited by claim 1.

Moreover, an ordinarily skilled artisan would not be compelled to modify Locher as proposed by the office action. Locher does not address the jitter problem at all. The current source used for charging and discharging the capacitor is controlled by a control signal having abrupt changes only. According to the office action, the "reproducible curve" during the clock signal is met by the charging and discharging of Locher's capacitor. However, according to the present invention of claims 1, 11 and 12, the signal applied to the current source is defined such that it has a reproducible curve, and this reproducible curve has an ending with a falling flank.

Locher does not suggest such a solution to avoid the negative effect of the jitter of the control signal.

The office action asserts at page 5 that "any noise associated with the clocking signal would be reduced by the inherent nature of the capacitor to block spurious noise effects from the clock pulse." Whether or not this assertion is correct, it is not the solution defend according to the present invention of claim 1, 11 and 12.

Accordingly, withdrawal of the rejection of claims 1, 11 and 12 is respectfully requested.

Objections to the Claims

Claim 2 stands objected to based on an informality. By this paper, claim 2 has been amended to delete the word "mass" and substitute the word --ground-- therefor. The informality appears to be a minor mis-translation from the original priority document. Applicants thank the Examiner for the careful review of the claims. Withdrawal of the objection to claim 2 in light of this amendment is respectfully requested.

Objections to the Drawings

The drawings stand objected to because FIGS. 1-3 are referred to in the specification as being "prior art" but are not labeled accordingly.

By this paper, a replacement sheet of drawings including FIGS. 1-3 has been submitted. In each of FIGS. 1-3, the label "PRIOR ART" has been added to conform the drawing to the specification. Accordingly, withdrawal of the objection to the drawing is respectfully requested.

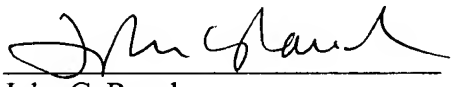
Objections to the Specification

The specification stands objected to based on informal matters. According to the office action, at page 8, the Brief Description of the Drawings refers to "figure 6 and "figure 7." However, the drawings show figures 6A and 6B, 7A, 7B and 7C.

By this paper, the specification has been amended to correct the noted informalities. Withdrawal of the objection to the specification is respectfully requested.

With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



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